

**REMARKS**

**Introduction**

In response to the Office Action dated November 10, 2009, Applicants have amended claims 13 and 21. Support for features newly-recited in the amended claims is found in, for example, 6, lines 30 to 34, and on page 9, lines 20 to 25 of the originally filed specification.

Applicants note the correct assessment of the Examiner in noting that the previous claim listing included two claims numbered 29. In accordance with the Examiner's valid interpretation of the second claim numbered 29 as claim 36, such change is reflected in the claim set included herewith. While the numbering has changed, Applicants have used the status identifier 'previously presented' to describe claim 36, as it represents the same content as the second claim 29 previously listed.

**Rejection over Prior Art**

The Office Action rejects claims 13, 17, 21, 22, and 25-27 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,605,685 to Momose et al. ("Momose") in view of U.S. Patent Pub. No. 2003/0054219 by Won et al. ("Won"). Reconsideration and withdrawal of this rejection are respectfully requested for the following reasons:

Of the pending claims, only claims 13 and 21 are independent. Applicants have amended each of claims 13 and 21 to recite additional features. Irrespective of the ability of the applied references to teach or suggest that for which they are offered, neither of these references, considered separately or in conjunction, teach or suggest the invention defined by amended claims 13 and 21 as they are now amended.

Claims 13 and 21 now each recite that, after the swelling step, the step of drying the ion-conducting membrane is performed at elevated temperatures in the range from 100 to 140 °C in order to remove residual solvent and to transform the ionomer into the form of an insoluble solid.

Of the known prior art, the applied Won reference most closely approaches the features newly recited in claims 13 and 21. However, the Won reference, in stark contrast, instead teaches drying the membrane after soaking the membrane in suspension solution A and B and C in order to form a self-assembly membrane. The Won reference teaches that the "prepared self-assembly membrane is left to dry" (para. [0032]). Accordingly, the Won reference teaches drying the membrane under room temperature conditions.

As now recited in each of independent claims 13 and 21, the membrane is dried at elevated temperature beyond the boiling

point of water in order to transform the radiation grafted ionomers into the form of an insoluble solid. Then afterwards, the "petrified" membrane is re-swollen to prepare the membrane for the hot-pressing.

The features now listed in the amended claims 13 and 21 are neither disclosed, taught, nor suggested by either of the applied Momose and Won references. Neither of these references in any way deals with the act of solidifying the ionomer that has been established by the prior membrane forming steps as now recited.

The Office Action rejects claims 14-16, 18-20, 29-31, and 36 under 35 U.S.C. § 103(a) as being unpatentable over Momose in view of Won, and further in view of U.S. Patent No. 5,656,386 by Scherer et al. ("Scherer").

The additional Scherer reference is offered for its asserted teaching or suggestion of a membrane being a radiation grafted membrane. Irrespective of the ability of the Scherer reference to teach or suggest that for which it is specifically offered, it nevertheless fails to overcome the shortcomings of the Momose and Won references as to the features newly recited in independent claims 13 and 21, from which each of the rejected claims ultimately depends. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

The Office Action rejects claims 23, 24, 28, 32, 33, and 35 under 35 U.S.C. § 103(a) as being unpatentable over Momose in view of Won, and further in view of U.S. Patent Pub. No. 2004/0115499 by Tani et al. ("Tani").

The additional Tani reference is offered for its asserted teaching or suggestion of the electrode layer being selected from carbon cloth, carbon paper, or carbon felt. Irrespective of the ability of the Tani reference to teach or suggest that for which it is specifically offered, it nevertheless fails to overcome the shortcomings of the Momose and Won references as to the features newly recited in independent claims 13 and 21, from which each of the rejected claims ultimately depends. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

**Conclusion**

Entry of the above amendments is earnestly solicited. An early and favorable first action on the merits is earnestly requested.


Should there be any matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Please charge the fee of \$208.00 for the four (4) extra claims in excess of twenty added herewith to our credit card fees.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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EJ/msd